



U.S. Department of Energy
**Energy Efficiency
and Renewable Energy**
Bringing you a prosperous future where energy
is clean, abundant, reliable, and affordable

Biomass Program

Thermochemical R&D

Thermochemical Conversion Analysis

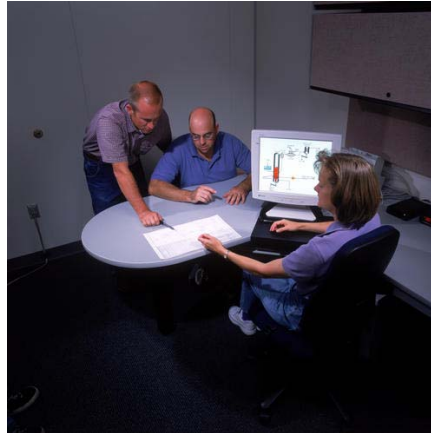
Analysis of scientific and technical issues behind the development of advanced technology is a critical element of research. Effective analyses provides direction and focus to research, identifies technical, economic, and environmental challenges, and helps to set goals and measure progress.

The Office of the Biomass Program at the U.S. Department of Energy conducts analysis to support on-going research in bioenergy, including the thermochemical conversion of biomass to fuels and products via gasification or pyrolysis. Current studies in this area have focused on biomass gasification followed by synthesis gas cleanup and conditioning for integrated fuels production processes as well as pyrolysis oil production.

R&D Pathway

Studies are being conducted to assess detailed equipment design and costs for various gas cleaning process steps for both direct and indirect gasification.

Additionally, to determine the economic viability of oxygen-blown gasification, oxygen production at different scales and varying degrees of purity is being examined in conjunction with direct gasification.



Discussing analysis data.

On-going technical and economic evaluations of the potential for various fuel products such as hydrogen, mixed alcohols, fischer-tropsch liquids and methanol from biomass syngas are being performed.

In addition to centralized plants, small-scale modular distributed fuel and chemical systems will be evaluated to examine the economic possibility of on-site biomass conversion.

Other work involves examining pyrolysis oil upgrading and its potential as a residual or distillate type fuel oil.

Other issues such as biomass drying, feed handling, and process integration are taken into account in thermochemical conversion analysis.

Benefits

- Shows the potential impact of overcoming technical barriers to thermochemical conversion of biomass.
- Measures research progression in obtaining program goals.

Applications

These analyses will help provide direction and support in developing technologies that are the most suitable and economically viable for thermochemical conversion of biomass.

Project Partners

National Renewable Energy Laboratory

Project Period

FY 2003 – FY 2005

For more information contact:

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Visit the Web site for the Office of the Biomass Program (OBP) at
www.eere.energy.gov/biomass.html

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A Strong Energy Portfolio for a Strong America. Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.